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ABSTRACT

Students must be shown not only how to use study strategies, must also why the strategy should be undertaken and what it is expected to achieve. The how-to-do-it step is not sufficient for all students to grasp study strategies. The teaching of these strategies must be direct, deliberate, and systematic. The metacognitive skill (why) must accompany the direct teaching of the cognitive skills to ensure student purpose and utilization. To be effective, teaching should follow a pattern that emphasizes modeling, guided practice, application, and feedback. A study strategy that includes both the reading and the study skills necessary for content area work is the PREP study system. The "P" refers to the preview step, in which the teacher draws students' prior knowledge to the fore by examining the title, subtitles, introductions, summaries, and graphic aids in the content text before reading actually begins. The next step, active reading ('R"), involves finding the answers to the questions posed in the "P" stage, using such aids as margin noting and highlighting. This is followed by "E", examining, or showing students how to use notes or maps. Finally, the "P" or prompt, involves the use of multisensory learning (oral recitation, acronyms, and mnemonic devices) to transfer the overt strategy to a personalized covert strategy. (Activities to reinforce students' notetaking are appended.) (HOD)

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STUDENTS AND STUDYING: AN INTEGRATED APPROACH

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STUDENTS AND STUDYING: AN INTEGRATED APPROACH

Study strategies and skills have been in the popular press for at least forty years, beginning with SQ3R (Robinson, 1941) and proliferating through many adaptations. Christen and Elliott (1983) propose that study skills instruction begin in middle grades and be carried throughout high school. Following that plan, Malena (1984) investigated 7th graders who received study skills instruction for 18 weeks in social studies classes and found no significance when overall grade point averages (GPA's) were measured. This was in agreement with others who have investigated study skills programs and used GPA's as measures. (Welch, 1978; LaMarca, 1981; Briley, 1972; Slansky, 1979/1980; Cleveland: Project Study, 1975). A question then arises: Is infusing study skills into the curriculum sufficient?

Pearson and Gallagher (1983) in their research on comprehension support an approach which is systematic to learning, by suggesting that when student learning has occurred, it has been through the repetition of a cycle of instructional events--explanations, guided practice, corrective feedback, independent practice and application...that leads to effective and independent strategy use (p.28). In other words, students must be taught a strategy systematically. Brown's (1982) latest research buoys these findings by suggesting and emphasizing that not only must students be shown how to study and use strategies, but they must also be shown why the strategy

should be undertaken and what it is expected to achieve.

To instruct students in the "how", teachers must be aware of the complexity faced by students when approaching "print". To be successful using print, or content material, students must:

1. Utilize basic strategies for reading and remembering, such as notetaking, summarizing, previewing, questioning, SQ3R or similar strategies.
2. Use organizational patterns in text, like problem-solution etc.
3. Recognize the demands made on the readers--time management, pressure anxiety, and prior knowledge.

When giving any textbook assignment, the teacher faces a task of equal difficulty. The teacher must decide what and how to teach so that the content will reach the students. The teacher must furnish the strategy to the student so that success can be accomplished. When presenting any strategy to students the teacher must include in the presentation:

1. How-to-do by breaking the skill into its subskill.
2. Why this strategy is appropriate in this situation in this form.
3. How to help the student know if the strategy is working; and, if not, how to make it work.

The demand here is for both the teacher and student to work on the cognitive and metacognitive levels so that metacognitive monitoring can be effective. When the (metacognition) awareness is lacking, students will not

appropriately select or use a strategy (Brown, 1979).

Teachers are able to deliver content, but are they equally successful in teaching strategies to learn the content? Has the teacher any format to use which will guarentee some success for the strategies? Pearson and Gallagher (1983) have suggested adapting Rosenshine's instructional model (1979) to fit any study/learning/reading strategy. Conclusions drawn from their review of prior research suggest that "explicit instruction associated with guided practice, lots of opportunity to practice and apply strategies independently, as well as some attention to monitoring the application of some strategies seems to help students perform better on a variety of comprehensive measures.

The four steps derived from Pearson and Gallagher (1979) are :

1. Modeling the strategy so that students see a competent person use the complete strategy;
2. Guiding the students' practice of the strategy in the classroom under close monitoring;
3. Providing independent practice of the strategy outside of the classroom without the close guidance; and
4. Giving continuous feedback to the students throughout the preceding three steps.

The following is a rationale of each of the steps:

1. Modeling the strategy by the teacher is necessary to give the students the chance to see rapid and complete use of the strategy. Often students see the subskills, but

have no idea how the whole is constructed or how it facilitates the students.

2. Guiding the students' practice will insure the continuity and sequence necessary to make the skill functional. During the guidance, the teacher freely moves about inspecting the progress of each student and generally observing the overall use. Any problems that arise can be effectively dealt with so that the trial and error can still happen without the penalty of being responsible for the strategy instantly. Providing independent use of the strategy limits the students' dependence on the teacher, which could occur during this step. Homework can be assigned which necessitates the use of the strategy, or students could use the strategy in other content classrooms and report back on their results. Cooperation with the other faculty will aid in this step.

3. Adapting the strategy to new situations is the most vital step and often the most neglected. Students need direction in applying a newly-learned strategy to different/new situations. The help might be needed in terms of modification of a strategy, i.e., math and science classes, or in the adoption of a new one which better fits the situation. If this generalization does not occur, the students will not use the strategy consistently, which negates the possibility of the strategy moving from the overt to the personalized covert status of a skill (Anderson, 1978). Continuous feedback allows both the teacher and student to feel involved in and concerned with

improvement. Questions demand immediate answers so that doubts and uncertainties can be eliminated.

A study strategy we suggest which includes both the reading and study skills necessary for content area work is the PREP study system. Initially, the PREP system is not to be viewed as a rigid intervention step by step procedure like the SQ3R or others (Schmelzer, Christen, & Browning, 1980).

1) P, the preview step, draws students' prior knowledge to the fore by examining the title, subtitles, introductions, summaries, and graphic aids in the content text before reading actually begins. Keeping in mind the steps of the model discussed above, the teacher points out the book features and how to use them to get information before the reading by turning title and subtitles into questions. This questioning sets the stage for critical thinking during the R reading stage.

2) Active Reading involves finding the answers to the questions posed in the P stage. If the students find that the material does not yield the answers, they must refine, adapt, change, or make new questions to fit the material being read. Active involvement with the print includes margin noting and highlighting after the paragraph or entire passage is read. The teacher must model this activity using the overhead or chalkboard, showing the students what is involved in obtaining information from a given piece of text.

After margin noting and highlighting, students should

take notes using the modified Cornell system. This particular style is recommended because the recall column is a metacognitive checkpoint to monitor comprehension of the print. (See figure 1).

Insert Figure 1

Another style of notetaking that may be more appropriate for the above average learner who is adequate independent notetaker is the mapping style (Hanf, 1971). Mapping is a visual display of information set up in an organized manner which delineates the relationship of the concepts being presented. It is a strategy that can be used across all content areas and grade levels. Because it is independently constructed by the students, it moves from an overt strategy to a personalized covert skill. (See figure 2).

Insert Figure 2

3) Examining is the important step ignored by most teachers; students seldom shown how to use notes or maps. They are, however, systematically tested on the information which became the notes or map. The key to examining is Why : Why take notes? Why highlight? Why map? Students must be convinced that these have a payoff for them. If they lack this knowledge they will fail to use the strategies appropriately in the target class and then will not transfer the strategy to any other applicable situation. Non-transfer guarantees lack of knowledge acquisition and skill development. Students are then at a double deficit: no content knowledge and no skill strategies to get that

knowledge.

4) Prompt, the final P, involves the use of multisensory learning. Oral recitation, overlearning, acronyms, mnemonic devices, all aid in the transfer of knowledge from short term memory to long term storage. Again the teacher must model the strategy before expecting student success.

Prompting is closely related to the reinforcement which occurs in the Active Reading and Examining Stages. The activities suggested by Thomas and Moorman (1983) as reinforcements are in actuality prompting devices which make students aware of the use and application of notetaking (See list #1).

Insert List #1

Emphasis on the cognitive and metacognitive cannot be understressed. With knowledge of why the strategy is usable in a given situation and the ability to use the strategy (the how-to-do), students can and will successfully transfer the overt strategy to a personalized covert strategy. This is borne out in the research done by Malena (1984), which supported previous research outcomes (Loveless, 1974; Lurie, 1977; Wolf, 1978). While no significance in overall GPA's appeared in 7th graders involved, significant differences in grade point average did appear in the content area used to teach the skills. Specifically, the GPA's in social studies rose for the entire 7th grade population. Within that population, the GPA's of a selected subset who had lived in the shool district for at least five years and had

matriculated from grades 2-7 were examined. These students' GPA's rose in all content areas measured: social studies, English, math, and science. Additionally, follow-up interviews with these students revealed that their awareness of 1) the skills, and 2) their ability to use the skills were significantly heightened. Interestingly, they questioned why these skills were not taught prior to their entry into 7th grade.

Atwood (1985) in a naturalistic study of literacy events occurring in the secondary content area classroom, interviewed students who took notes. The results were similar to those of Fisk (1982). The advanced placement college prep students took complete notes and had reasons for the notes taken. The average students took notes because the teacher told them to do so. They had no personal reasons for doing the notetaking and few had any use for the notes beyond reviewing them immediately before tests. Below average students also took notes, which lacked format and organization. They had no reason for taking them beyond compliance with teacher demands, and even then, they made no use of the notes. They also questioned the purpose behind notetaking. Obvious lack of metacognition (awareness) prevented successful employment of the strategies and cognitive skills. No direct, deliberate teaching of the skills (how) or the reason (why) for the strategies resulted in failure of tests in the content area. Our conclusions are:

1. The how-to-do step is not sufficient for all students to

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grasp study strategies.

2. The teaching of these strategies must be direct, deliberate, and systematic.
3. The metacognitive skill (why) must accompany the direct teaching of the cognitive skills to ensure student purpose and utilization.
4. To be effective, teaching should follow the Pearson/Rosenshine model, which emphasizes modeling, guided practice, application and feedback.
5. Study skills need to be infused in the content curriculum simultaneously with both the how-to-do and the why.

When these conclusions are realities, students will have a sufficiently large repertoire of skills. They will be able to select the skill which appropriately fits the situation. While in that situation, they will be able to detect "breakdowns" or malfunctions in comprehension and as Brown (1978) states, "Make a new recipe". Additionally, students will be able to transfer the skills to other new and different situations with some guarantee of success.

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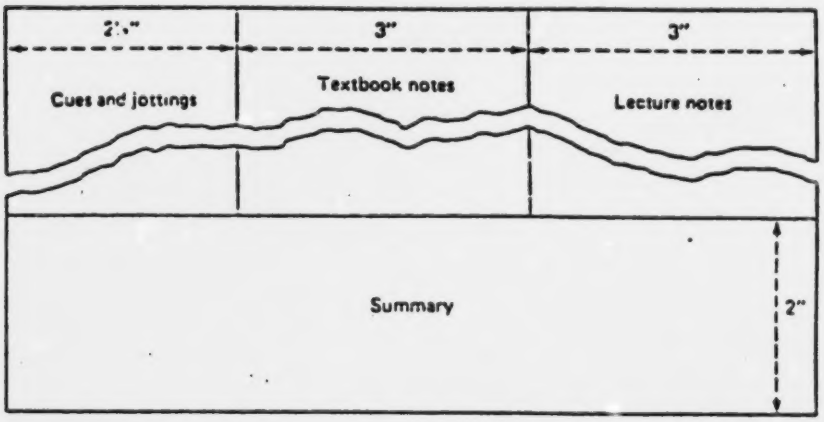
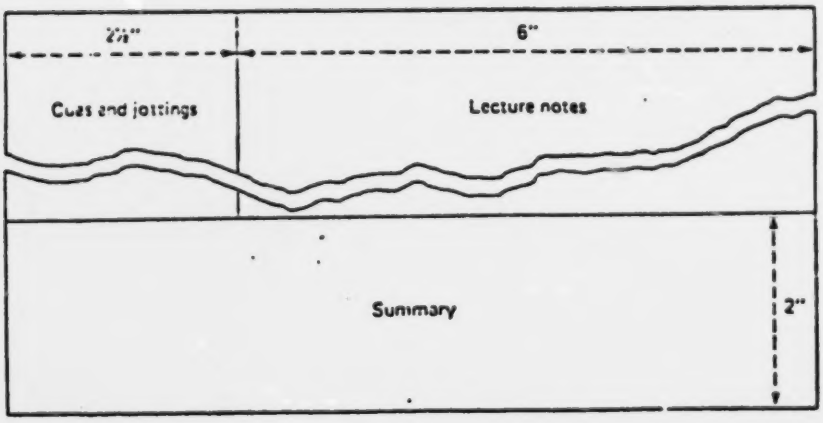
Figure 1

Lecture Notes in the Cornell System: Combining textbook and lecture notes.



Summaries in the Cornell System.



* Taken from Pauk, W. (1984). How to Study in College (3rd Ed.). Boston, MA: Houghton Mifflin Co.

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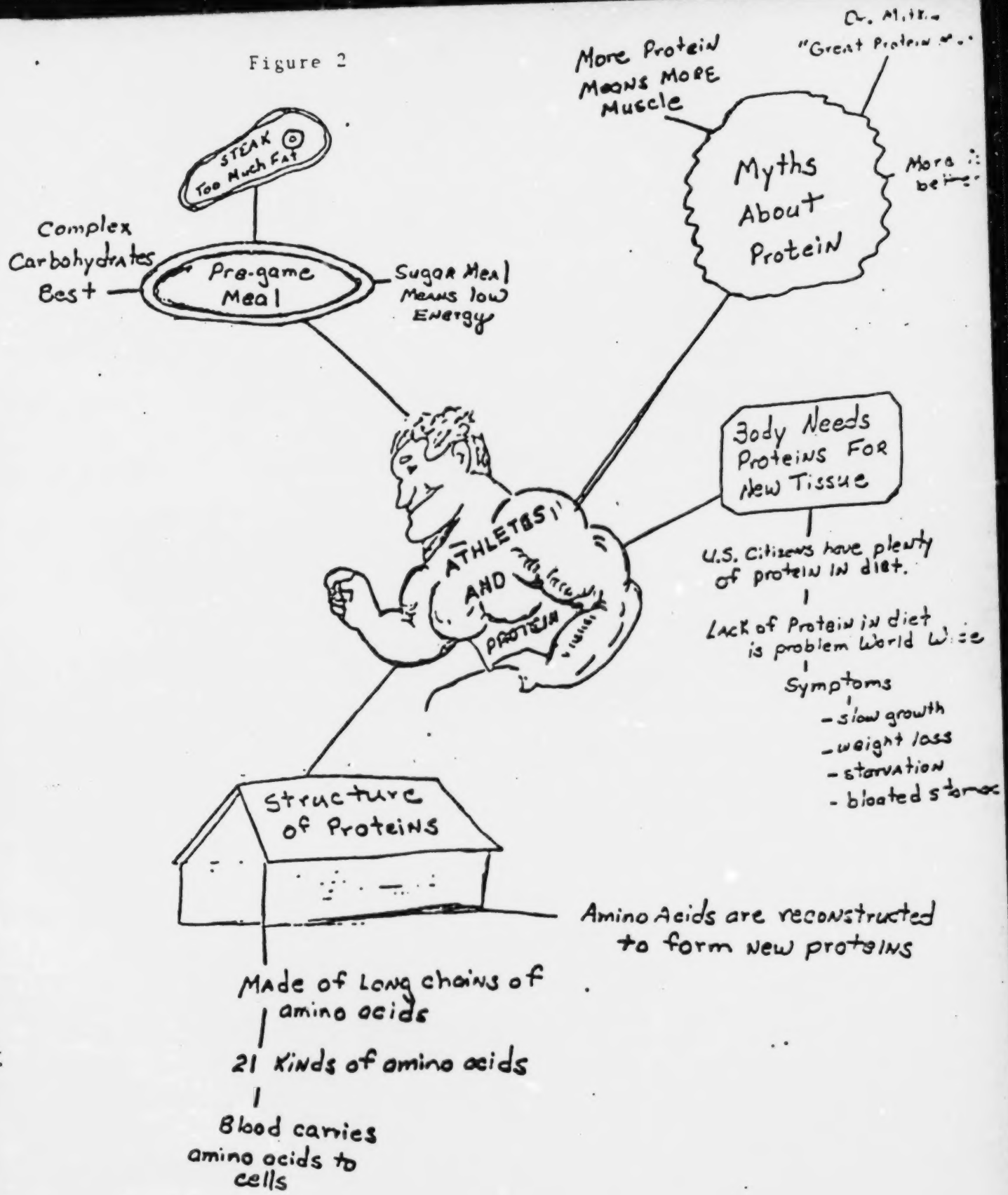
Figure 2


More Protein Means More Muscle
"Great Protein"
Myths About Protein
More
STEAK
Too Much Fat
Complex Carbohydrates Best
Pre-game Meal
Sugar Meal Means low Energy
ATHLETES AND PROTEIN
Body Needs Proteins For New Tissue
U.S. Citizens have plenty of protein in diet.
Lack of Protein in diet is problem World Wide
Symptoms
- slow growth
- weight loss
- starvation
- bloated stomach
Structure of Proteins
Amino Acids are reconstructed to form new proteins
Made of Long chains of amino acids
21 Kinds of amino acids
Blood carries amino acids to cells

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List # 1

ACTIVITIES TO REINFORCE STUDENTS' NOTETAKING

1. After some instruction on how to take notes, collect students notes without warning, either at the end of the class period or the next day. Grade, return and discuss.

2. Assign the class to write a summary of that day's discussion. On the next day ask one student to read his/her summary for general comparison.

3. Have a weekly review on class notes. Ask questions that could be answered by using the notes. Points could be given for correct answers. This procedure could also be used at the beginning of each class period during the first five minutes.

4. Occasionally allow students class time to review their notes with a partner, especially after an important unit or before a test.

5. Give unannounced quizzes where class notes can be used.

6. Instruct students on how to make an effective "cheat sheet" from class notes. Allow only a 4x6 index card for this sheet. You really are teaching summarization, not dishonesty. Then allow them to utilize this "cheat sheet" for some part of your test.

7. Allow students to use class notes for game situations such as "Jeopardy" when you review for an examination.

8. Allow students to use class notes for follow-up activities that require higher level thinking skills such as problem solving and criticizing.

9. Ask students to desigh questions for a review sheet or an exam and allow them to use their notes. Put them in groups and ask for five good questions that are either multiple choice, true-false, or matching. Compile these questions and discuss the next day. Some of these questions could be on their exam.

(Reprint from Designing Reading Programs, Thomas & Moorman, 1983)

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